

# OPTICAL WAVEGUIDE GRATING COUPLER

## Field of Invention

5        The present invention relates to integrated optics, and more particularly, to an optical waveguide grating coupler for coupling optical signals in and out of integrated optical structures.

## Cross Reference to Related Applications

10        This application claims the benefit of U.S. Provisional Applications No. 60/446,842, 60/446,843, 60/446,844, 60/446,845, 60/446,846, and 60/446,847, all of them filed on February 11, 2003.

## Background of Invention

15        Light offers many advantages when used as a medium for propagating information, the foremost of which are increased speed and bandwidth. In comparison with electrical signals, signals transmitted optically can be switched and modulated faster and can include an even greater number of separate channels multiplexed together. For these, as well as other reasons, light wave transmission along optical fibers is widespread.

20        Light can be propagated through planar waveguide structures as well as optical fibers. Planar waveguide structures having a wide variety of functionalities are currently available and many new such devices and components will likely result from future research and development. These planar structures are advantageous because they can be compactly incorporated together in or on a planar platform, i.e. substrate, to form planar  
25        packages analogous to integrated circuits (ICs). These structures in general are referred to as integrated optics. Integrated optical "chips" comprise a substrate on which or in which various integrated optical components or devices are formed. Planar waveguides analogous to conductor traces in semiconductor electronic ICs that are mounted in or on